DECISION FEEDBACK EQUALIZER FOR MINIMUM AND MAXIMUM PHASE CHANNELS

ABSTRACT

This invention describes an apparatus and method to improve the performance of a decision feedback equalizer (DFE) for time-varying multi-path channels. For minimum-phase channels, the equalization is performed in a time-forward manner. For maximum-phase channels, the equalization is performed in a time-reversed manner. More specifically, for maximum-phase channels, the filter coefficients are computed based on the channel estimates reversed in time, and the filtering and equalization operations are performed with the received block of symbols in a time-reversed order. In the context of this invention, the term "minimum-phase channel" implies that the energy of the leading part of the channel profile is greater than the energy of the trailing part. The term "maximum-phase channel" implies that the energy of the leading part of the channel profile is less than the energy of the trailing part.